

Web Traffic Aggregation

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INTRODUCTION

One reason for registering domain names is for use in funneling Web traffic to a particular destination. Procter & Gamble (P&G) owns many domain names based on generic words that can be used to funnel visitors toward P&G brands. Cough.com, germs.com, and sinus.com all currently bring visitors to a page that takes United States visitors to the single Web site, vicks.com. Vicks.com in turn promotes P&G's Vicks-branded line of products that are associated with cough, germ, and sinus remedies. Gooogle.com, gogle.com, goolge.com, googel.com, and foofle.com are all owned by Google, used to *redirect*, or automatically take, visitors to a single Web site, google.com. In this way, Google is *aggregating* Web traffic, generated from all people who type these misspellings, to a single Web site.

Unfortunately, such *traffic aggregation* is sometimes used in ways that can create victims. A child who uses the URL (uniform resource locator) whitehouse.com with the intention to research a school assignment on the American White House (at <http://whitehouse.gov>) will be taken to a Web site with adult content. Someone who believes that he or she is using the URL of a Web site devoted to gun control could end up at a Web site with a threatening message by an opposing group (cf. "Hacker Intercepts," 2000; Montgomery, 2000). Someone who types what is thought to be the name of a popular children's Web site might be taken to a site that tricks people into downloading malicious software (cf. Happy Trails Computer Club, 2004; "IIS Exploit," 2004; MIT IS&T, n.d.; Spector, 2002). People might click on an index link or a personal bookmark to visit a school or church Web site, not knowing that the organization is using a new Web address, and be taken to a Web site with adult content (Markovich, 2001; cf. Bryant, 2001; Hardy, 2001).

BACKGROUND

Through the careful selection of domain names, P&G is possibly attracting visitors to Web sites that promote brands related to the generic words that it has registered.

Through the selection of domain names related to common misspellings of its brand name, Google is attracting visitors who might otherwise get lost and not find its Web site. In either case, if these organizations were not using these domain names, someone else might. While attracting visitors to its Vicks brand with the use of domain names based on generic words, P&G is able to keep a competitor from using these words to push visitors toward a competing brand. If Google had not registered misspellings of its brand name, someone else could use those domain names to gain visitors to increase traffic to Web sites that are completely unrelated, such as those presenting pornography or gambling.

A *traffic aggregator* can, then, acquire domain names that generate traffic, but which will take visitors to Web sites with a purpose or theme that is unrelated to the apparent content of the domain name. The aggregator can then push ideological or commercial messages that Web visitors might otherwise not seek, can sell products that the visitor might not otherwise have purchased, can trick the visitor into divulging personal information (e.g., a credit-card number), or can download malicious software to an unsuspecting visitor's computer (cf. Marsan, 2002). Such a scheme can cause visitors to be victims.

In many cases, a traffic aggregator will acquire old, existing, abandoned domain names to redirect traffic to and thereby increase traffic to Web sites with gambling and adult content. In this scheme, the acquired domain names are often ones that have been deliberately abandoned by organizations that no longer need them. The abandoning organization probably does not realize, however, that the abandoned name has value to an aggregator because it still generates some traffic by being listed in link indexes, in peoples' browser favorite lists, and such. The victims in these cases are not only visitors, but also those who maintain link lists that include the abandoned domain names. The abandoned domain name is not simply a dead link when it is reacquired by such a traffic aggregator; it is now a link to objectionable material. In this way, organizations such as the United Nations and the U.S. Department of Education have found themselves accused of maintaining Web sites with links to pornography (Marsan, 2002).

THE EMERGENCE OF TRAFFIC-AGGREGATION ACTIVITIES

Domain-name speculators registered domain names in the early days of the World Wide Web on the expectation that they had future value either for personal use or for resale. Procter & Gamble was once the owner of dozens of domain names such as armpit.com, beautiful.com, diarrhea.com, and flu.com, reportedly asking for more than \$1 million each for at least some of the nearly 100 names that it auctioned in 2000 (Associated Press, 2000; McCarthy, 2000; Oppenheimer, 2000; VeriSign, 2000). The purchaser of the \$7.5 million domain name Business.com, eCompanies, believed that its high purchase price for this name was a wise investment because the name would drive traffic and thereby lower advertising expenditures (Mack, 1999). But such names were long ago registered, and the resale values are now high enough that few can afford to make such an investment.

Domain-name squatters register the names of famous trademarks, organizations, or people on the hope that those identified with these might someday want to purchase them or on the expectation that these could be used to drive traffic to a Web site with unrelated content. Ron Gonzalas, candidate for mayor of San Jose, CA, found that the domain name Gonzalas2002.com had already been registered to someone who had similarly registered future dates with the names of mayoral candidates in other large U.S. cities as well as the names of U.S. senators. San Francisco mayor Willie Brown's name was registered on multiple domains as a way to drive traffic to content that was unfavorable to the mayor (Learmonth, 1999). Arbitration decisions that have favored a challenge by someone who would appear to have more legitimate rights to the name, existing trademark laws, and new laws, however, will probably decrease such interests in domain-name squatting in future years (cf. Mariano, 2001; *Anticybersquatting Consumer Protection Act*, 1999).

Typosquatters and *Web spoofers*, however, rely on using traffic that is already generated by a particular name or Web site. Spoofers and typosquatters register an alternate spelling or a misspelling of a name or Web site that generates traffic (visitors). This could be through transposing words or inverting a phrase. Whitehouse.com, for example, is an adult site that is deceptively similar to whitehouse.gov. Cartoonjoe.com is a transposition of joecartoon.com, and dinsey.com is a misspelling of disney.com; these domains were used by the convicted porn peddler John Zuccarini. The U.S. government alleged that Mr. Zuccarini earned as much as \$1 million annually through typosquatting variations of Web sites associated with entertainers, celebrities, and cartoon characters popular with children. Mr. Zuccarini was even-

tually jailed, but only after the passage of a law that now makes it a crime to use a misleading domain name with the intent to attract a child to a pornographic Web site (Edelman, 2003a; "Report on Reaction," 2003; *Truth in Domain Names Act*, 2003; Whois Source, 2004). Typosquatting and Web spoofing are not in themselves illegal and are not necessarily always unethical, but as can be seen in this case, these can be lucrative ways to aggregate traffic to a revenue-generating Web site if no laws are broken.

Domain-name grabbers watch for names that are about to expire and immediately grab or register them when released by the registrar. Domain-name grabbing is different from *domain-name hijacking*, the latter being an increasingly difficult scheme in which the registrar is fraudulently tricked into transferring ownership of the name. In many cases, grabbed names had been deliberately abandoned by the original owners who did not realize how much value the name might have. The most desirable grabs to traffic aggregators are domain names that are highly linked from other Web sites, that are highly placed in search engines, or that were once popular and are likely to be saved in bookmark or favorite lists on personal Web browsers. Two years after the American River College deliberately abandoned an old domain name, it found that some people were still linked to the old name, but that the links now pointed to an adult-content Web site (Hardy, 2001). The Catholic Diocese of Brooklyn, New York, and the Ballet Theater of Maryland similarly found that their abandoned domain names were grabbed to point to adult content (Markovich, 2001; cf. Bryant, 2001; Hardy).

Tina's Webcam perhaps best illustrates the value of abandoned Web sites to traffic aggregators. Edelman (2003b) conducted an archival analysis on the Tina's Webcam site, finding 4,525 distinct domain names that redirected to it. Prior titles were available for 2,991 of these names, and none were found to have previously hosted content related to what was on Tina's Webcam. These domain names were found to have been very popular previously with regard to being linked and accessed. Links from search-engine listings and from others' Web sites could provide pointers for such traffic aggregators for years.

FUTURE TRENDS

Emerging schemes for taking control of domain names for use in traffic aggregation are based on issues that are not easily regulated by industry practice or law. Possibly the most serious issue is that it is not uncommon for organizations—churches, schools, children's groups, or families—to deliberately abandon a domain name, perhaps in favor of a new name. The abandoned name might still have

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